Arduino Data-Logging Shield Kit

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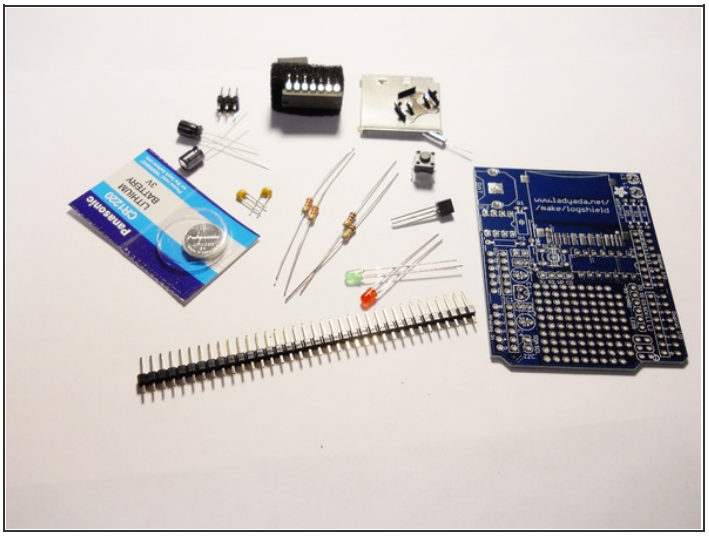
PARTS:

- Data Logging Shield for Arduino (1)
- 3.3V Regulator (1)
- Real Time Clock IC (1)
- Level Shifter IC for SD Card (1)
- Watch Crystal (1)
- SD Card Holder (1)
- 3mm Red LED (1)
- 3mm Green LED (1)
- 10K Resistor (1)
- 1.0K Resistor (2)
- 2.2K Resistor (2)
- 0.1uF ceramic capacitor (2)
- 100uF/6.3V capacitor (2)
- Tactile switch (1)
- 36-Pin Male Header (1)
- 12mm 3V Coin Cell (1)
- 12mm Coin Cell Holder (1)
- PCB (1)

SUMMARY

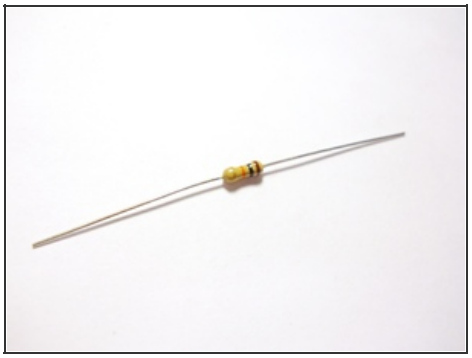
This data-logging shield for the Arduino makes saving data to files on any FAT16 or FAT32 formatted SD card really easy. The included Real-Time Clock timestamps all your data with the current time, so that you know precisely what happened and when!

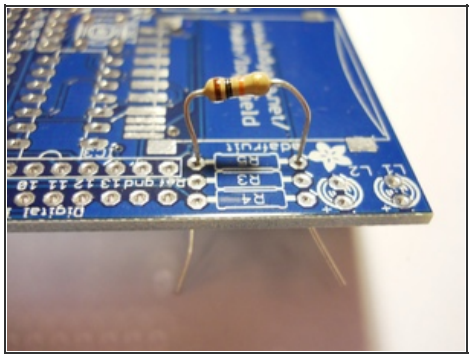
Step 1 — Gather your Materials.

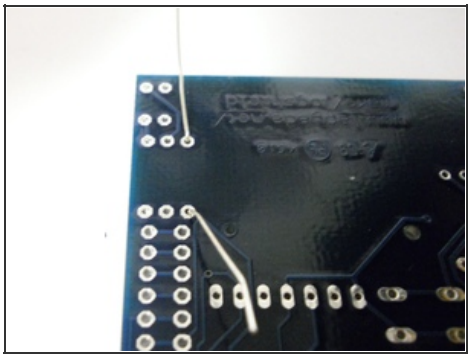


- Check to make sure you have all of the necessary components to build the data logging kit.

Step 2 — Insert the 10K Resistor.

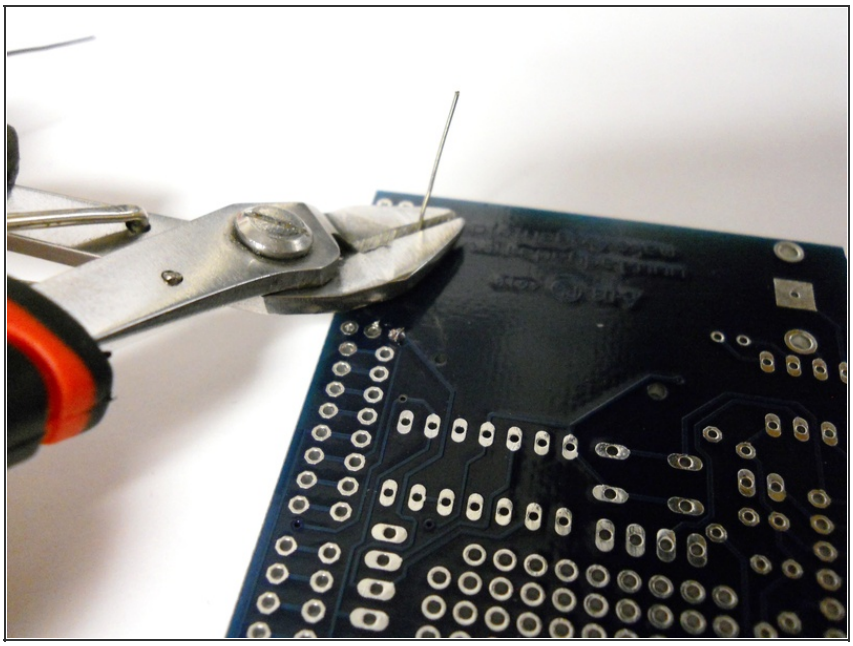






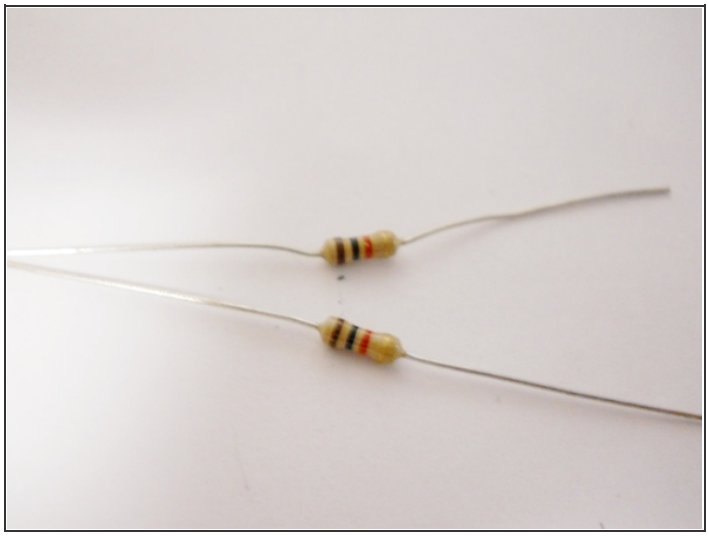
- Insert the resistor with color bands Brown-Black-Orange into the location marked **R5**.
- Resistors are not polarized, so it does not matter which direction you insert them in.
- Turn the board over, and then solder the leads.

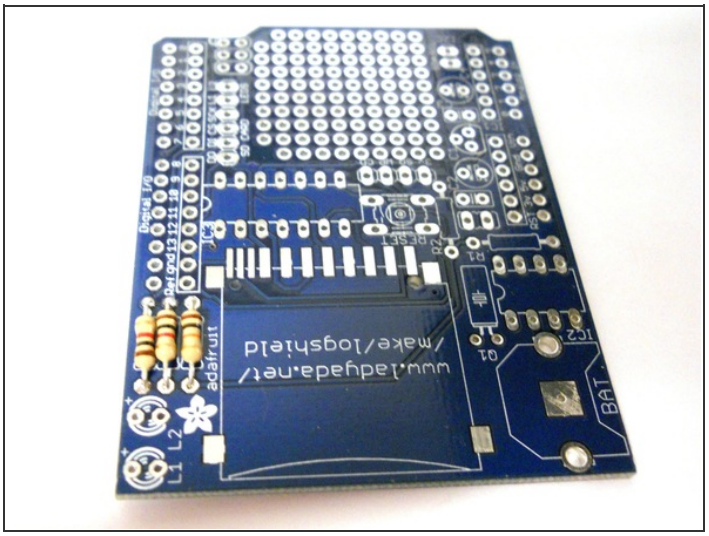
Step 3 — Tip: Clip your leads!



- Make your soldering life easier by trimming the leads of the components after you solder them in.

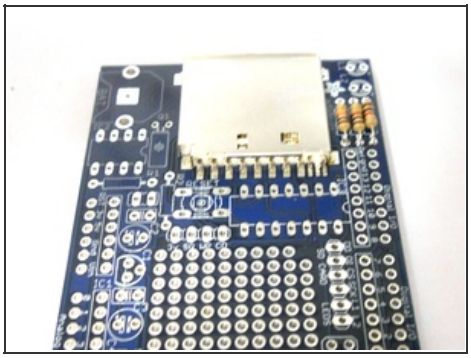
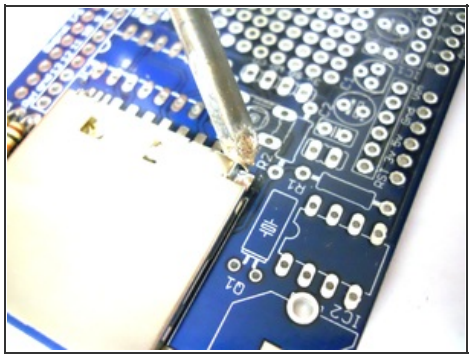
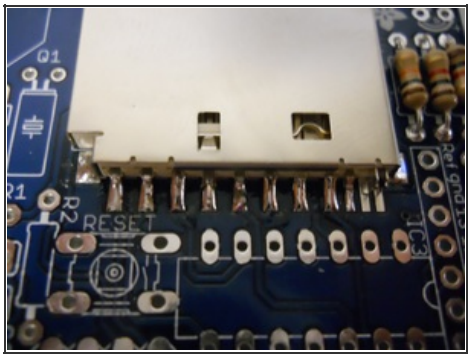
Step 4 — Insert the 1.0K Resistors.





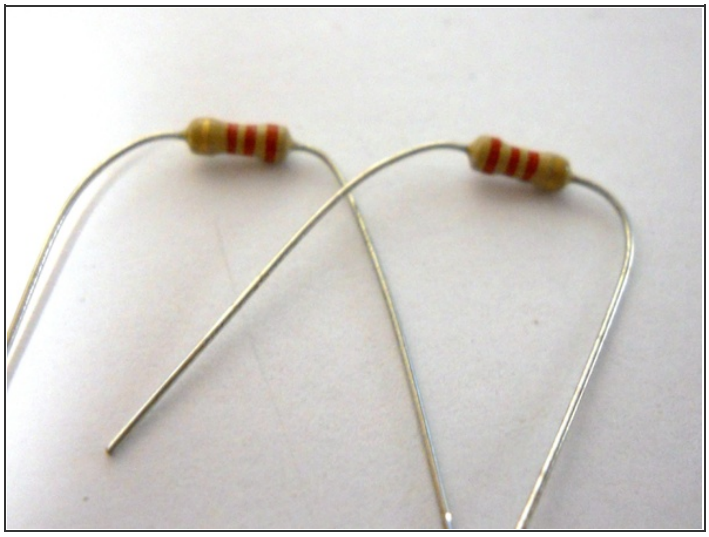
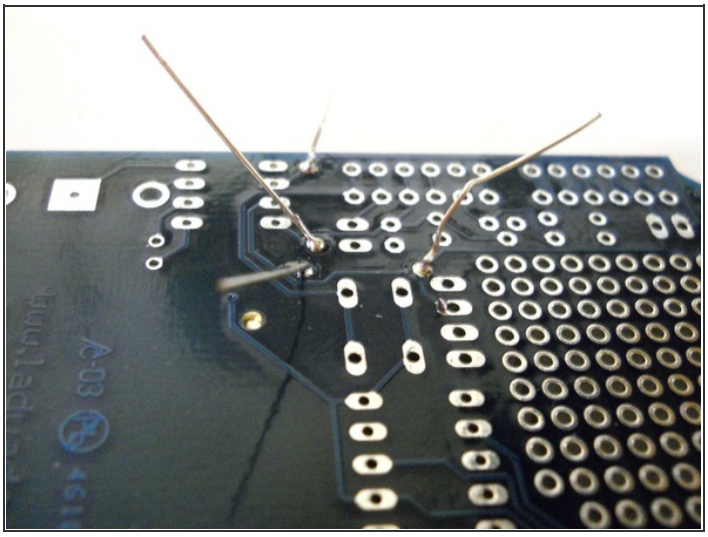
- In locations **R3** and **R4**, insert the two resistors with the color bands Brown-Black-Red.
- Turn the board over, and solder the resistors in. Then clip the leads.

Step 5 — Mount the SD Card Holder.

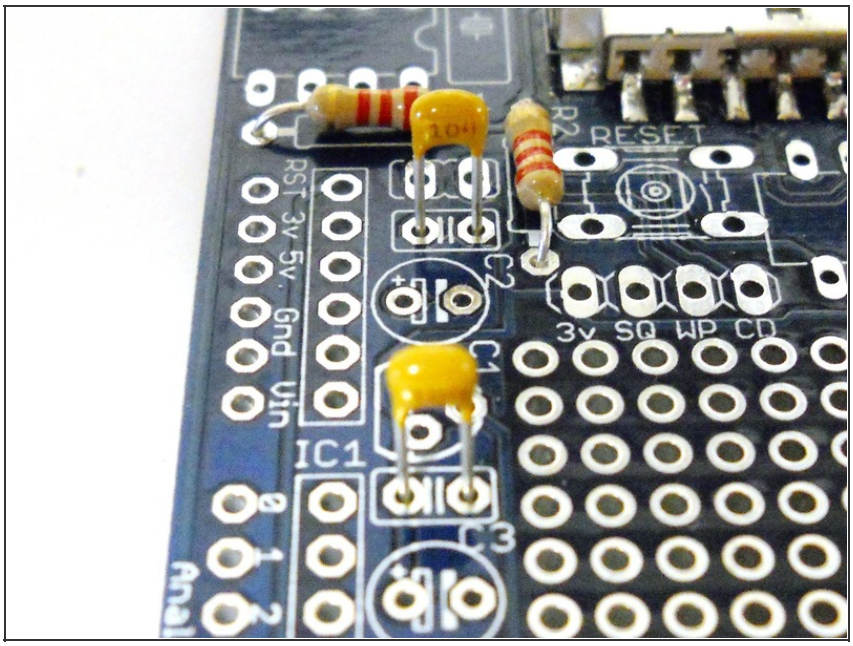
- The SD card holder has two humps that snap it into place on the circuit board.
- You should be able to feel it fit into two grooves and sit snugly on the surface.
- On the sides are 4 tabs. Solder these tabs to the circuit board by first heating up the tabs, and then applying solder. The holder shouldn't move once it's been soldered in.
- Now all you need to do is solder the leftmost 7 tabs to the circuit board. It is unnecessary to solder the remaining three.

Step 6 — Insert the 2.2K Resistors.

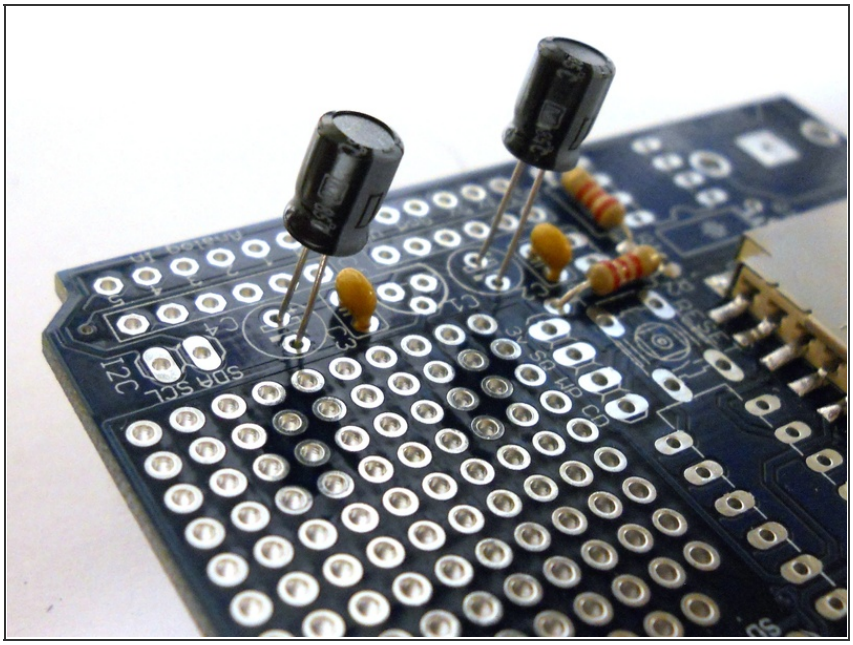
- In locations **R1** and **R2**, insert the two resistors with the color code Red-Red-Red.
- Solder these two resistors in, and then clip the leads.

Step 7 — Insert the Ceramic Capacitors.



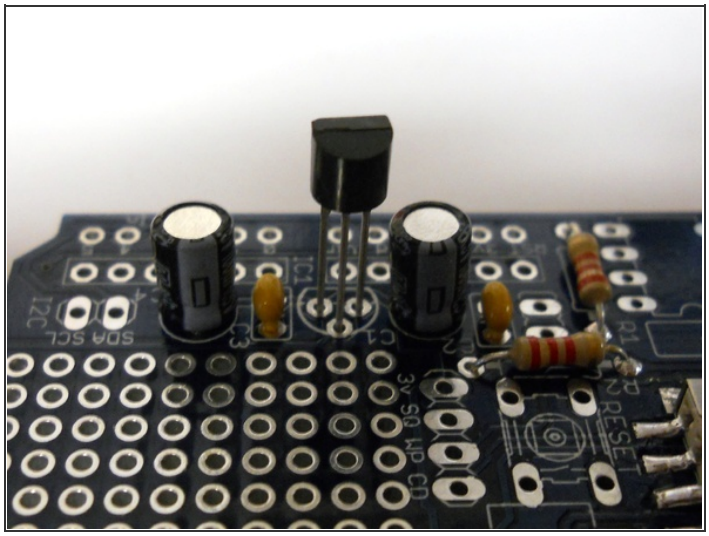
- The two small, yellow ceramic capacitors are not polarized, so it does not matter which direction you insert them.
- Insert them into locations **C2** and **C3**.
- Solder them in, and then clip the leads.

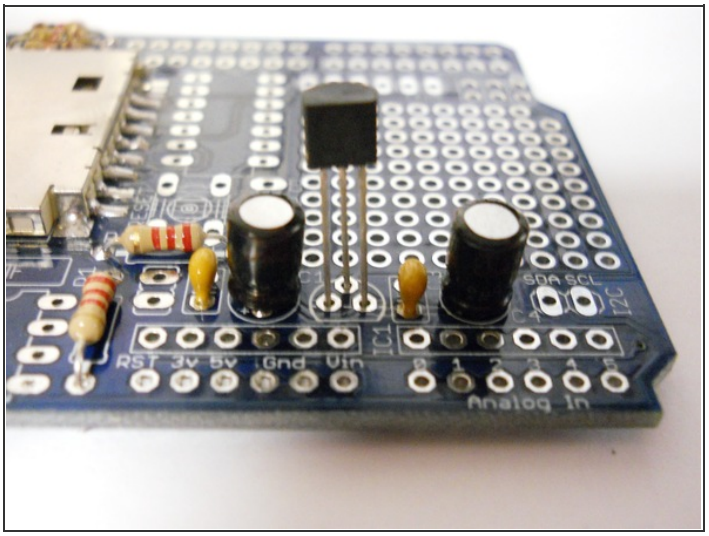
Step 8 — Insert the Electrolytic Capacitors.



- Electrolytic capacitors are polarized, so it is important to insert them properly.
- The longer lead is the "+" lead, so make sure you enter this lead into the hole marked with the "+.
- Insert them into locations **C1** and **C4**. Solder them in, and then clip the leads.

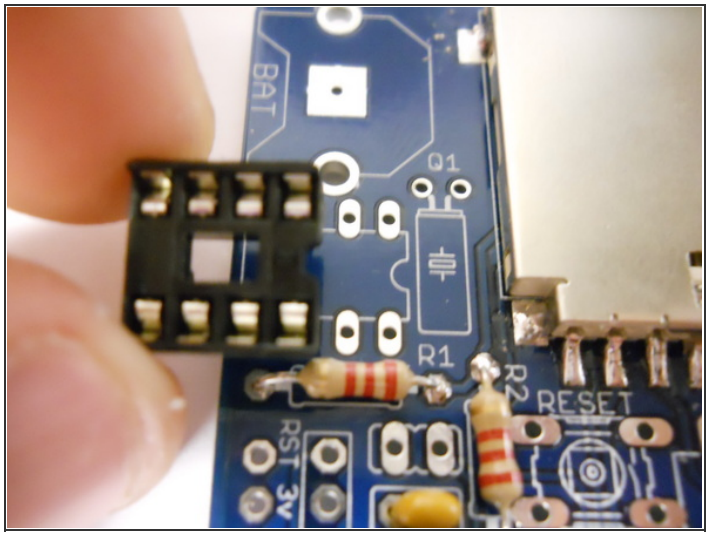
Step 9

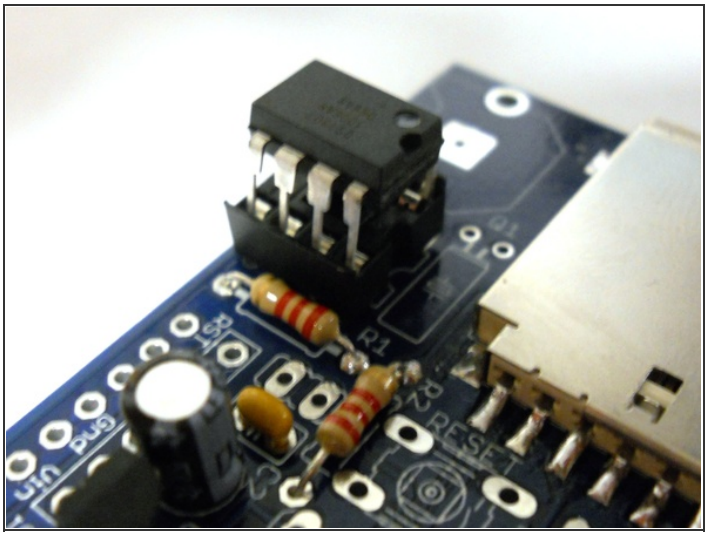




- Insert the 3.3V Regulator.
- In location **IC1**, insert the regulator with its flat end matched up with the flat side of the silk-screened image on the circuit board.
- Solder the leads in, and then clip them.

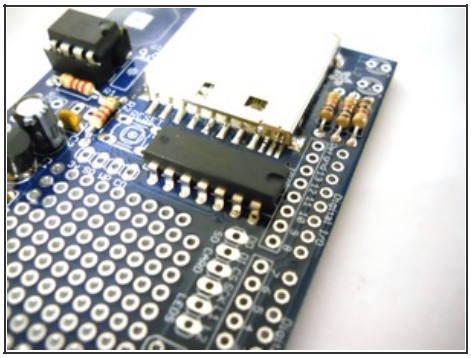
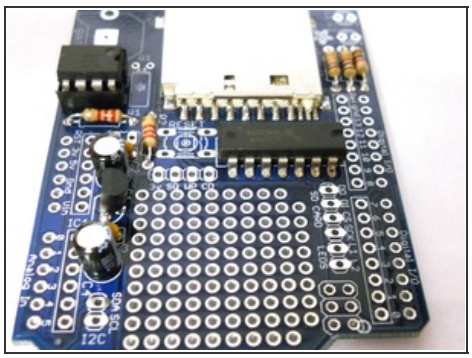
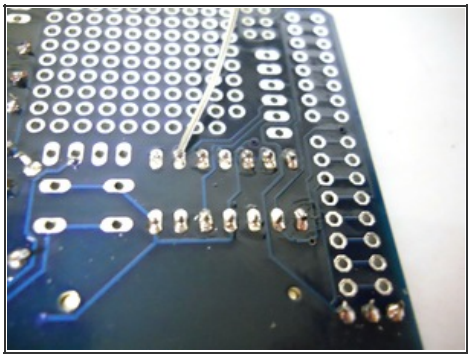
Step 10 — Insert the 8-pin Socket.





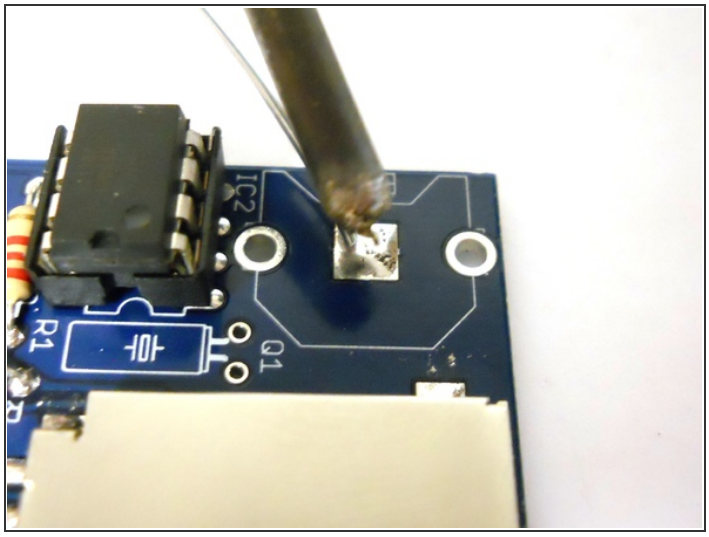
- The socket has a notch on one end. This notch must match the one in the picture silk-screened onto the circuit board.
- Make sure the socket is flush with the circuit board when you turn it over to solder.
- Once the socket is soldered in, you can insert the IC into the socket.

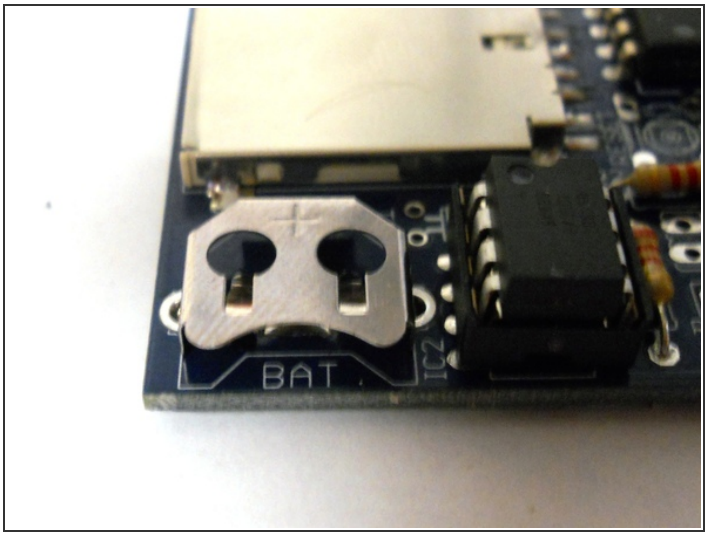
Step 11 — Insert the IC3 chip.

- The longer chip will be inserted into location **IC3** without a socket. It is important to make sure that the end of the chip with the notch matches up with the the notch on the silk-screened image.
- Turn the board over and solder the chip into the circuit board.

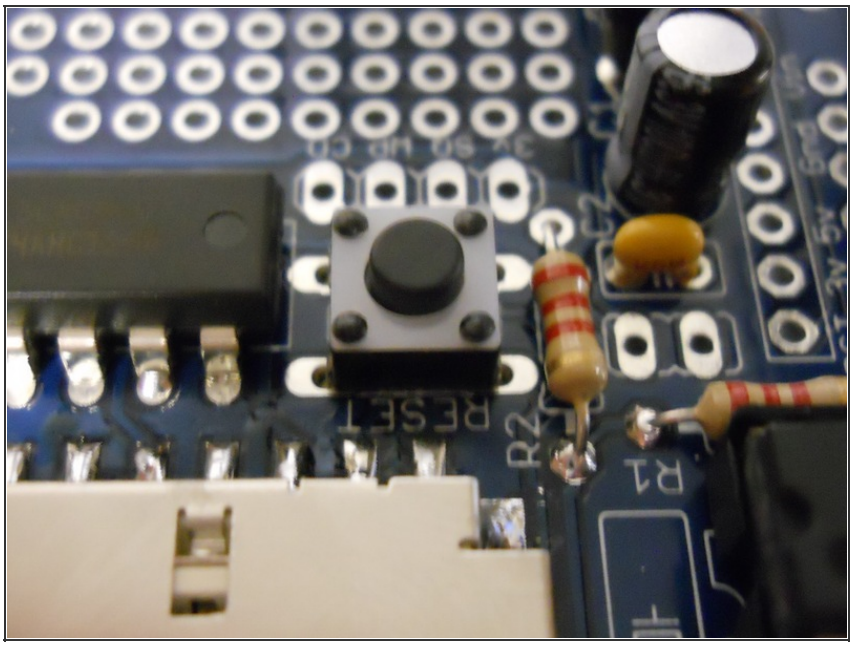
Step 12 — Soldering the Battery Holder.





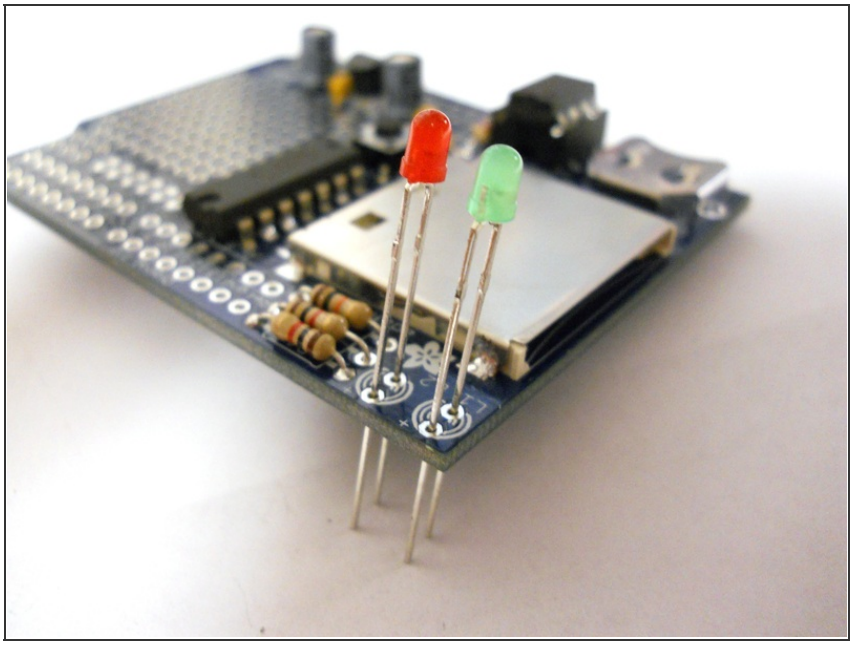
- Deposit a bit of solder on the center tab of the location marked **BAT**.
- Now you can insert the metal battery holder and solder it in.

Step 13 — Insert the Reset Button.



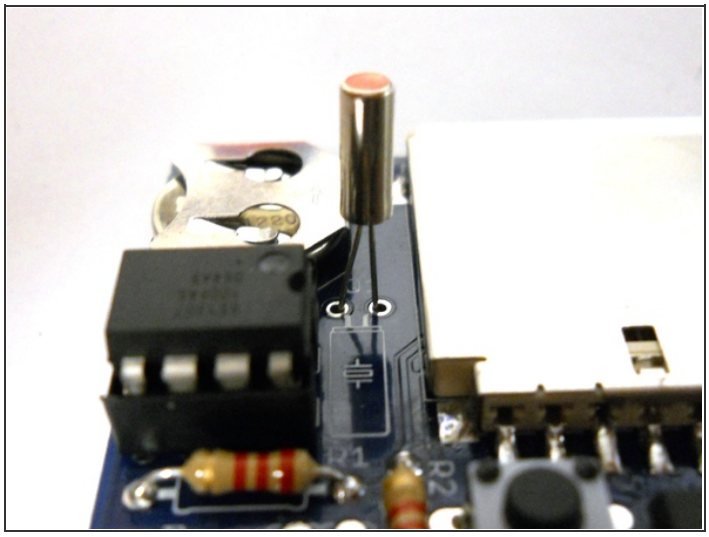
- The reset button is inserted into the location marked **RESET**.
- Press the button all the way into the circuit board. Turn the board over and solder it in.

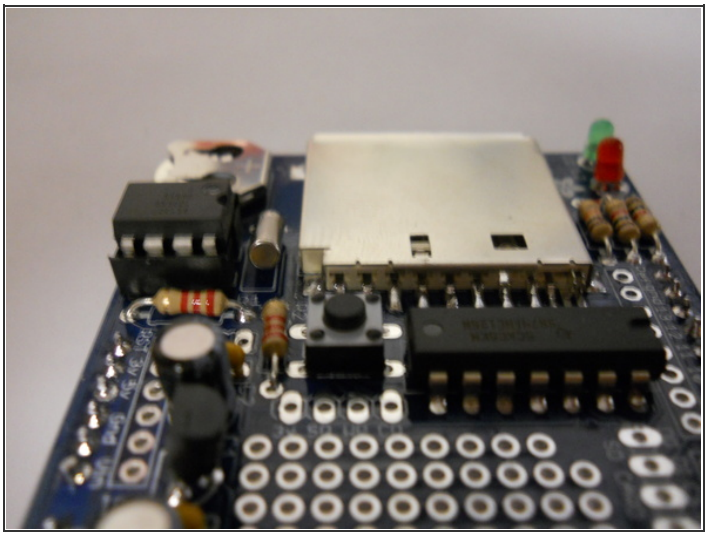
Step 14 — Insert the LEDs.



- In location **LED1**, insert the green LED. The longer lead of the LED should be inserted into the hole marked "+" on the circuit board.
- In location **LED2**, insert the red LED. Just as with the green LED, insert the longer lead of the LED into the hole marked with the "+".

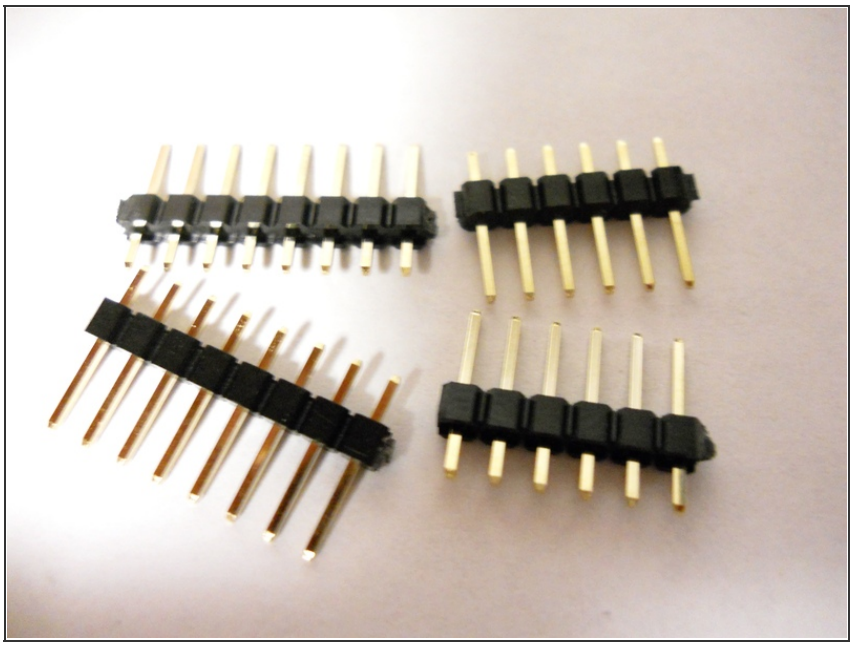
Step 15 — Insert the Watch Crystal.





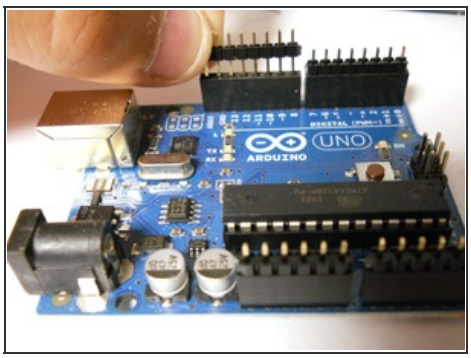
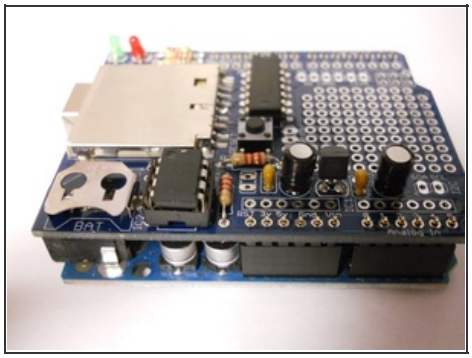
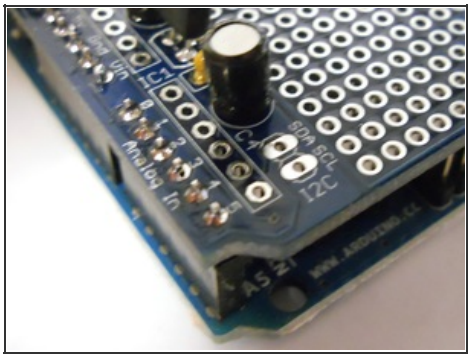
- In location **Q1**, insert the small metal cylinder. The crystal is not polarized, so you can insert it in any direction.
- Solder it in, and then clip the leads.

Step 16 — Clip your headers.



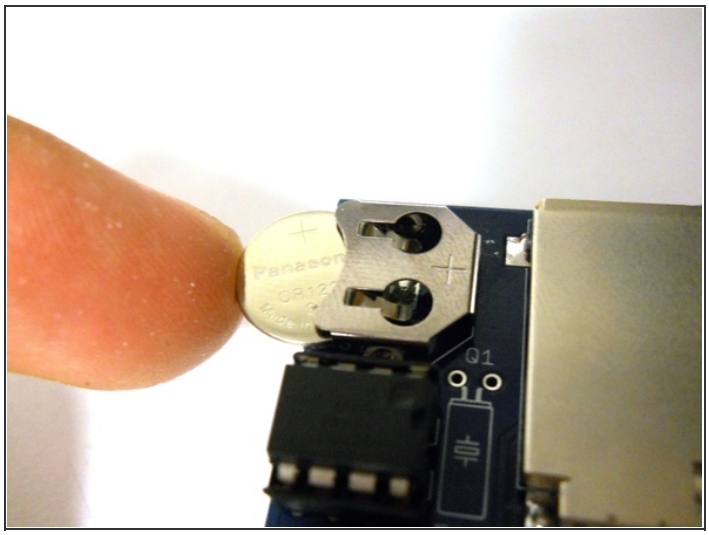
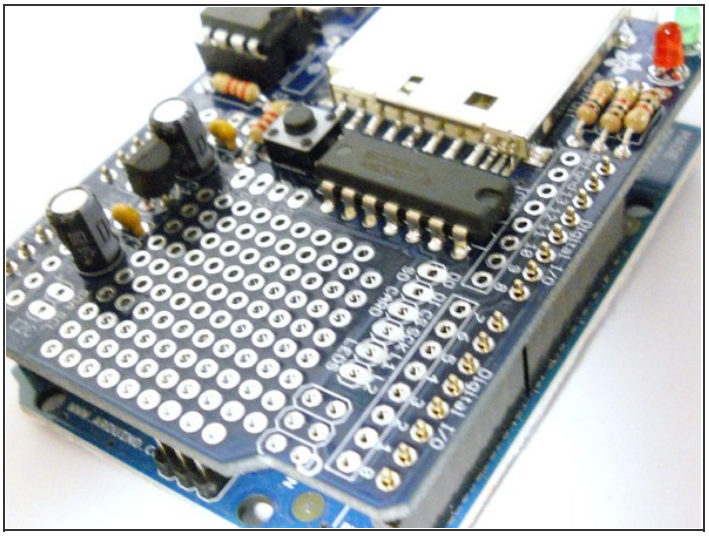
- From the 36-pin header, clip two 8-pin and two 6-pin headers.

Step 17 — Soldering the Headers.

- Insert the longer end of the headers into the female headers on the Arduino.
- Place the shield on top of the the shorter leads of the headers.
- Solder every pin of the male headers, and you will be finished.

Step 18 — Finishing Touches.

- Insert the included coin-cell battery, and you are finished.
- You can remove the shield from the Arduino, or keep it attached to the Arduino.

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